

**METHOD AND SYSTEM FOR PRODUCT SELECTION**

**CROSS-REFERENCE TO RELATED APPLICATIONS**

This application claims priority to, and herein incorporates by reference in its entirety, Applicant's copending U.S. Provisional Application No. 60/264,714 filed January 30, 2001.

**FIELD OF THE INVENTION**

The present invention relates generally to a method and system for identifying products that satisfy certain aesthetic and physical criteria. More particularly, but not by way of limitation, the invention relates to a novel web-based method and system for guiding consumers in the selection of a material based on factors such as color, design, intended use of the material, and manner of construction of the material.

**BACKGROUND**

Good design does not just happen, except in nature. Instead, design involves a conscious, subjective process of selecting and organizing materials and objects in a visually pleasing way. When well executed, good design is as functional and comfortable as it is beautiful. But design is not just the province of interior decorators, designers, and architects. Every time the average consumer chooses a paint color or arranges furniture in a room, they are making design decisions.

While there are basic guidelines for those design decisions, the most important tool a consumer has is his/her eyes. Consumers must be observant, have options, learn to recognize things that please them, and analyze why.

Color, space, line, texture and pattern are all critical in decorating. A successful mix of these factors helps achieve a balanced, visually appealing scheme. Among those factors, color is perhaps the most powerful decorating tool at one's disposal. While the human eye can discern more than six million colors, only a fraction of those are generally used in decorating and design.

Because it is difficult to use words to describe what is visual, it is important that the basic terminology of color be understood. The color wheel is a useful tool when discussing color fundamentals. **Fig. 1** shows a simplified color wheel. The color wheel shows the basic twelve colors in their pure form. The primary colors, red **1**, blue **2** and yellow **3**, make up all other colors. Secondary colors lie midway between the primary colors on the color wheel. These colors come from combining the primary colors: yellow **3** + red **1** = orange **4**; yellow **3** + blue **2** = green **5**; and red **1** + blue **2** = violet **6** (often called purple). Intermediate colors result from mixing a primary color with an adjacent secondary color on the color wheel. For example, red **1** (a primary) and violet **6** (a secondary) combine to make red-violet **7**. There are six intermediate colors on the color wheel: yellow-green **8**, blue-green **9**, blue-violet **10**, red-violet **7**, red-orange **11** and yellow-orange **12**. Not only do colors have these fundamental structures, but they also have characteristics; the qualities that give

colors personality and character. These characteristics include, hue, value, and temperature.

Hue is just another word for color. Turquoise and crimson are hues; so are softer colors like lilac and butter cream. The terms hue and color are used interchangeably.

Value refers to the lightness or darkness of a color. Of course, there are infinite variations in value, from the lightest lights to the darkest darks. Mint, for example, is a light value of green. Navy is a dark value of blue. Each pure color has a natural value; that is, yellow is naturally light, while violet is naturally dark. Light-value colors are pale versions of the pure colors. Pink is a light value of red. Peach is a light value of orange. And iris is a light value of blue-violet. Light-value colors are not limited to colors referred to as "pastels." Lavender, melon and coral are light-value colors, but they are stronger than hues that might be used in a nursery. Medium-value colors are midway on the scale of light to dark. Dark-value colors often have descriptive names — spice, indigo and walnut, for example. Shade is a color that has been darkened by the addition of black or a darker color.

Temperature is an aspect of color that is generally easy to grasp. Referring to **Fig. 1**, if an imaginary line is drawn on the color wheel from red-violet 7 to yellow-green 8, the colors to the left — yellows, reds and oranges — are the warm hues. Warm colors are considered to be "advancing" because they seem as though they are coming closer to the viewer. On walls, warm colors can make a room feel cozy and enveloping. The colors to the right of that imaginary line on the color ring — greens,

blues and violets — are the cool hues. They appear to be farther away, which is why they are called "receding" colors. On walls, cool colors can make a room feel spacious and calm. Visual temperature is relative. Red-violet and yellow-green may seem warm or cool, depending on the presence of other colors. Next to orange, red-violet looks cool; next to blue, it looks warm. Visual temperature comes into play when colors are combined in a decorating scheme. In general, the juxtaposition of warm and cool color intensifies each. If one room is painted a warm red and an adjoining room a cool green, each will seem more intensely warm or cool. This effect also works within a room; cool walls make a warm wood floor seem even warmer.

As previously stated, color is perhaps the most powerful design tool. Most consumers and professionals begin decorating and design projects with a discussion of color and color schemes. For most items, however, color is just one of the choices that must be made. For each color there are generally many choices of patterns and designs to choose from. This is certainly true for fabrics, leather, rugs, carpet and trim, where the variety of designs and patterns to choose from can be mind numbing.

Traditionally, consumers and professionals have been forced to travel to showrooms to look at all the different patterns, designs, and colors available for a certain item. Once at the showroom, consumers are then forced to ferret through large, heavy volumes of swatches showing the various patterns, designs, and color combinations available. After going through this time consuming process, consumers are often left with a handful of swatches which they must then take back home so that they can be matched against existing materials.

Accordingly, there is a need for an improved method and system for not only selecting products that correspond to limited/basic colors, but also a method and system that efficiently and systematically presents for consideration variations of the initially selected color. Further, there is a need for a method and system that presents for consideration a multitude of aesthetic (e.g., designs) and physical features (e.g., the material and manner of construction) of products in an efficient and effective manner.

#### SUMMARY OF THE INVENTION

The present invention overcomes the above-noted and other shortcomings by providing a novel and improved method and system that meet the aforementioned needs.

Recognizing the onerous and overwhelming nature of certain product selection activities, the present invention is drawn to a method and system for guiding consumers through a decision-making process for identifying a product that best satisfies the desired aesthetic and physical objectives. Color is a powerful design tool, however, as discussed, colors have a variety of characteristics that elevates the decision making process, especially when other aesthetic and physical factors, such as the product's construction and ornamental design are to be considered.

An embodiment of the present invention provides for a novel method and system to guide consumers through a sophisticated color selection process, as well as, other selection processes in a systematic and efficient manner. The consumer, from the comfort of his/her home or office may access the Internet and be guided through a

systematic and efficient process for selecting a product that satisfies the desired aesthetic and physical objectives.

A further embodiment of the present invention is an automated method for identifying products that possess certain aesthetic and physical features, comprising the steps of: displaying a list of product offerings to a user, the product offerings organized by product area; displaying samples of colors to apply to a product offering; and displaying samples of variations of a color selected by the user. The embodiment further provides for displaying an aesthetic criterion for the product; displaying a list of options categorized within the aesthetic criterion; displaying a physical criterion for the product; displaying a list of options categorized within the physical criterion; and comparing the selected product offering with the variation of color, aesthetic criterion, and physical criterion selected by the user.

Additionally, the embodiment includes displaying an image of at least one product from the selected product offering that corresponds to the variation of color, aesthetic criterion, and physical criterion selected by the user; and providing a description of the product, wherein the product is a fabric or trim. The embodiment also displays an object, such as a sofa or another type of furnishing, and applies the image of the product to the image of the object, thereby modifying the appearance of the object.

A further embodiment of the present invention includes a computer system for identifying products that possess certain aesthetic and physical features, comprising: a communications component, wherein the communications component: displays

product offerings to a user; displays samples of colors to apply to a product offering; displays samples of variations of a color selected by the user; indicates a variation of a color selected by the user; displays an aesthetic criterion for the product area; displays a list of options categorized within the aesthetic criterion; displays a physical criterion for the product area; and displays a list of options categorized within the physical criterion.

The embodiment further includes a data storage component containing information regarding the product offering from the selected product group for comparison with the variation of color, aesthetic criterion, and physical criterion selected by the user, wherein the communications component sends the user an image of at least one product from the selected product group that corresponds to the variation of color, aesthetic criterion, and physical criterion selected by the user; and wherein the communications component sends the user a description of the at least one product.

A further embodiment of the present invention pertains to the selection of fabrics and trims for home furnishings to allow users not only to search for swatches that match their selected criteria, but also to allow users to see how a chosen fabric or trim may look on a particular furnishing. An embodiment of this inventive process includes the following: User selects an image of an object of interest (e.g., sofa) from a listing or inputs an image (e.g., through use of a scanner) into the inventive system; the object of interest is displayed, for example, in an all white color or its original color; the user proceeds through the process as discussed in this disclosure (for

example, selecting a color family and other criteria); user selects a swatch of fabric among several swatches that match the selected criteria; and the image of the object of interest (e.g., sofa) is updated so that it is virtually upholstered with the swatch design. This image may also be printed by the user and compared with other furnishings within the home. The process need not be performed in this particular order, for example, the selection of the object of interest may occur after the desired swatch has been identified. Further, the inventive process may not include all of the illustrated steps, and/or may include additional steps.

It will be apparent to those skilled in the art that various modifications and variations can be made in the inventive system and methodology without departing from the scope or spirit of the invention.

Other advantages and novel features of the present invention will become apparent in the following detailed description when considered in conjunction with the accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The file of this patent contains at least one drawing executed in color. Copies of this patent with color drawing(s) will be provided by the Patent and Trademark Office upon request and payment of the necessary fee.

The present invention is shown by way of example and not by limitation in the accompanying figures, in which:

FIG. 1 is a illustration of a color wheel;



FIG. 2 depicts a computer network for an embodiment of the present invention;

FIG. 3 is a flow diagram of an embodiment of the present invention;

FIG. 4 is the flow diagram continued from FIG. 3; and

FIGS. 5 - 12 are screen shots of an embodiment of the present invention.

### DETAILED DESCRIPTION

Reference will now be made in detail to embodiments of the invention, one or more examples of which are illustrated in the accompanying figures. Each example is provided by way of explanation of the invention, not as a limitation of the invention. It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the scope or spirit of the invention. For instance, features illustrated or described as part of one embodiment can be used on another embodiment to yield a still further embodiment. Thus, it is intended that the present invention cover such modifications and variations that come within the scope of the appended claims and their equivalents.

As seen in **Fig. 2**, an embodiment of the method and system that is the subject of the present invention may be implemented on an open network, such as the Internet **14**, wherein home personal computers **13** are connected to a server **15** in order for consumers to view, for example, swatches of fabric from a virtual library. The server **15** has known components, for example, a communications component **15A** for interacting with the users and a data storage component **16** for maintaining electronic files. Other embodiments include closed networks. Further, kiosk computers **18** at a

merchant **19** may also used to view the virtual swatches. Embodiments also include the use of wireless microcomputers **17**, for example, Personal Digital Assistants (PDAs). The present invention may also be provided to a user on a computer readable medium, for example, a compact disk. Much of this disclosure will use the Internet implementation, as an example.

Referring to **Fig. 3**, a flow chart of an embodiment of the present invention is shown. In this embodiment, a merchant provides access to a website on the Internet to enable a user to methodically identify a product that matches the physical and aesthetic attributes desired by a consumer. The present invention, however, is not limited to a merchant - consumer context, but is also applicable to those situations where there is no product to sell. For example, the present invention may be used for educational and entertainment purposes. Further, the present invention need not be limited to identifying fabrics for home or office furnishings, but may also be used to identify a design for clothing, mechanical structures, transportation conveyances, and any other inanimate or animate object.

Returning to **Fig. 3**, a merchant's website displays at least one product area or group in which a consumer may be interested **20**. For example, the consumer may be interested in purchasing upholstery, and would therefore select a product area that would include upholstery **21**. In response to the consumer's selection of the product area of interest, the website presents a first criterion to help the consumer narrow his/her choices among the many number of products to choose. In this embodiment, samples of colors are shown to the consumer to help him/her select the most

appropriate upholstery **22**. The consumer responds by selecting a color of interest **23**. Then, in a systematic manner, the website presents samples of variations of the color selected **24**. For example, the variation of the color selected may include characteristics, such as a different hue, value, shade, temperature, etc.

The consumer is then asked to select the “shade” of interest **25**. The use of the term “shade” is not meant to be limiting, but rather as an abbreviated and simplistic way to refer to color variation (hue, value, shade, temperature, etc.) of the initial color selected. The selected “shade” is then highlighted **26** and the consumer is then queried as to how the product will be used **27**. The consumer then selects how the product is intended to be used from a list of uses **28**.

Further criteria are then presented to the consumer to help narrow his/her choices based on the consumer’s desired physical and aesthetic attributes for the product. The website provides a listing of collections, for example in this scenario, designer collections, from which to select an upholstery **29**. The consumer then selects the desired collection or selects no preference **30**. Next, to continue the upholstery example, the consumer is presented with a listing of the types of upholstery construction that are available **31**. The consumer then selects the construction of interest **32**. The website also presents different designs **33** for consideration and selection **34**.

At this point, the consumer enters his/her selected criteria so that the inventive system can search its database for matching products **35**, or as in the present example, matching swatches. Images, for example thumbnail images, of the products that

match the criteria are then displayed on the screen **36**. The consumer is then able to select the desired product **37** whereby further information regarding the product is presented and, in certain embodiments, an enlarged one-to-one scaled image of the product is shown **38**.

Screen shots of the website employing an embodiment of the inventive method and system are shown in **Figs. 5-12**. Referring to **Fig. 5**, upon accessing the Internet, users, in this embodiment, can select from two product areas, either Fabric Showroom **39** or the Trim Showroom **40**. Additional electronic showrooms are provided in other embodiments and may be created for any product. Other showrooms include, for example, Carpet, Hardware, Leather, and Rugs, etc.

Since color is a consumers' most powerful design and decorating tool, the present invention first prompts a user to select a color family **41** in which he/she would like to investigate. There are many possible color families. The eleven individual color families shown in **Fig. 5** are merely illustrative. Different color families may be used. It is also noted that different types of items may lend themselves to certain groups of color families. For example, the group of color families **41** may be chosen because the eleven individual color families that make up the group are the colors most closely associated with upholstery fabrics.

Referring to **Fig. 6**, once a user selects a color **51** from the color family **41**, a select list of variations **50** within the color family is displayed. By allowing the user to select an individual variation, the inventive method and system can better tailor the user's preferences. As previous noted, the term "shade" that appears in **Fig. 6** is not

meant to be limiting, but rather to generally refer to variations of the initial color selection. Any number of variations (e.g., hue, value, shade, temperature, etc.) may be provided. The ones shown in **Fig. 6** are merely illustrative. The choice of “shades” to be displayed for each color need not be arbitrary. In this embodiment, the variations are selected based on marketing research, projected fashion trends and current fashion trends. Other criteria may also be used. In other embodiments, there is also a correlation between the variations that are displayed and the available colors of the item being sought by the user.

Although color and variation have been chosen, chances are that there are a number of products that meet the criteria. In an effort to further narrow the users search, additional criteria are presented, as shown in **Fig. 7** after the user selects the desired “shade” **53**. These criteria may include, but are not limited to, physical and aesthetic criteria, such as, Use **60**, Collection **70**, Construction **80** and Design **90**. Selecting within these criteria may be mandatory or optional and may occur in any suitable order. In addition, within each of the criteria may be a “No Preference” option. The “No Preference” option may also serve as the automatic default.

In **Fig. 7**, “Use” **60** is selected, by for example, moving the cursor over the word “Use.” This brings up a “Use” submenu **61**, for example a drop down menu, with which a user can scroll, giving the user an addition capability to narrow and refine his/her search. Examples of various “Uses” include, but are not limited to, Upholstery Weight Only and Window/Bedding/Light Weight Upholstery. Selecting “Collection” **70**, as shown in **Fig. 8**, brings up another submenu **74** giving the user a

further capability to refine and narrow his/her search. Examples of various “Collections” provided in the submenu **74** include, but are not limited to offerings, such as, Upholstery and multi-purpose fabrics organized by color, Primary prints, Specialized window, upholstery and multi-purpose collections, and Style-inspired print and woven collections. Embodiments of the invention also provide the option to choose from a specific name brand and designer collections.

Selecting “Construction” **80**, as shown in **Fig. 9**, also brings up a “Construction” submenu **82** giving the user an additional capability to refine and narrow his/her search. Examples of various types of “Construction” include, but are not limited to, Texture Woven, Damask-Jacquard, Silk, Faux Silk, Velvet-Mohair, Tapestry-Embroidery, Cotton-Duck-Linen, Prints, Sheers-Casements, Suede, Lining, Boucle, Chenille, and Chintz.

Selecting “Design” **90**, as shown in **Fig. 10**, brings up a “Design” submenu **92** giving the user yet another capability for narrowing or refining his/her search. Examples of various “Design” options include, but are not limited to: Architectural, Botanical, Crinkled, Damask, Ethnic, Flame Stitch, Floral, Geometric/Abstract, Herringbone, Ikat, Juvenile, Moire, Novelty, Paisley, Plaid, Pleated, Small-scale, Solid, Stitchery, Stripe, Toile, and Tropical.

After refining and narrowing the search, the user can request items that match the criteria he/she has selected by selecting, or clicking, “Enter” **100**. It is contemplated that other means may also be used to process the user’s search request. After “Enter” **100** is selected, the automated method and system culls through its

virtual library of materials and products and display thumbnails **110** of the products that match the users selected color, use, collection, construction, and design criteria as shown in **Fig. 11**. In this embodiment, shown are virtual swatches of fabric that meet the selected criteria. Selecting a specific thumbnail **110** will enlarge the thumbnail picture and provide additional information in, for example, a separate pop-up window **120**, as shown in **Fig. 12**. An embodiment of this pop-up window **120** displays the virtual swatch on a one-to-one scale, just as if the user was flipping through a design book at an actual showroom. The virtual swatch may be displayed at other scales as well. In one embodiment, the additional information in the pop-up window **120** may include, but is not limited to information on name, pattern, color, width, horizontal repeat, vertical repeat, railroaded, contents, country of origin, book name, unit, and price.

The present invention has applications beyond what is disclosed in the above mentioned embodiments. The present invention may be used in a variety of ways in the design and decorating field. One such way is the use of the present invention to allow users to not only search for swatches that match their selected criteria but to also allow the user to see how a chosen swatch may look directly on an item, such as furniture, rugs, carpet, trim, etc.